

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 August 2001 (30.08.2001)

PCT

(10) International Publication Number
WO 01/63883 A3

(51) International Patent Classification⁷: **G06F 17/60**,
H04M 11/00

(21) International Application Number: **PCT/US01/05677**

(22) International Filing Date: 23 February 2001 (23.02.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/185,053 25 February 2000 (25.02.2000) US
Not furnished 23 February 2001 (23.02.2001) US

(71) Applicant: **TELECOMMUNICATION SYSTEMS, INC.** [US/US]; Suite 400, 275 West Street, Annapolis, MD 21401 (US).

(72) Inventors: **TITUS, Mark**; 396 Kiltie Court, Arnold, MD 21012 (US). **UNG, Dara**; 843 Snow Valley Lane, Odenton, MD 21113 (US). **JOHNSON, Carle, S., Jr.**; 1249 River Bay Road, Annapolis, MD 21401 (US). **WALLACE, Erik**; 1326 Swan Drive, Annapolis, MD 21401

(US). **GEIL, Phillip**; 6216 Lilac Bush Lane, Clarksville, MD 21029 (US). **HRONEK, Daniel, J.**; 1709 Woodlore Road, Annapolis, MD 21401 (US).

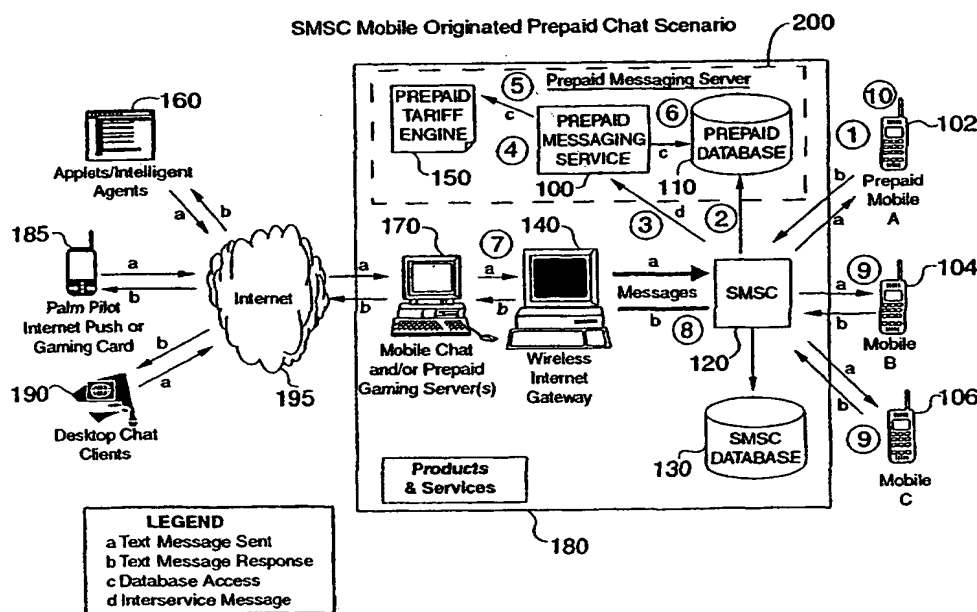
(74) Agent: **BOLLMAN, William, H.**; Manelli Denison & Selter PLLC, Suite 700, 2000 M Street, NW, Washington, DC 20036 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: **PREPAID SHORT MESSAGING**



(57) Abstract: A prepaid messaging solution that uses open networking standards and which supports pre-payment of enhanced Internet messaging services. The prepaid architectures and method accurately determine if a subscriber has sufficient account balance to deliver a complete short message, prior to delivery of the message. The short message may be prevented from being delivered if insufficient funds are in the subscriber's account. A prepaid tariff engine (150) is extensible over a TCP/IP network (195), and supports remote interaction with the SMSC (120) and web chat servers (170) for the purpose of applying a real-time billing charge for each message.

WO 01/63883 A3



Published:

-- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

14 March 2002

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/05677

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/60; H04M 11/00
US CL : 705/39-45; 455/406, 408, 414, 445

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/39-45; 455/406, 408, 414, 445

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST, DIALOG, DERWENT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y.P	US 6,075,982 A (DONOVAN et al.) 13 June 2000 (13.06.2000), see entire document.	1-30
Y.E	US 6,195,543 B1 (GRANBERG) 27 February 2001 (27.02.2001), see entire document.	1-30
Y	US 5,974,133 A (FLEISCHER, III et al.) 26 October 1999 (26.10.1999), see entire document.	1-30

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

- A- document defining the general state of the art which is not considered to be of particular relevance
- E- earlier application or patent published on or after the international filing date
- L- document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- O- document referring to an oral disclosure, use, exhibition or other means
- P- document published prior to the international filing date but later than the priority date claimed

- T- later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- X- document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- Y- document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- &- document member of the same patent family

Date of the actual completion of the international search

12 August 2001 (12.08.2001)

Date of mailing of the international search report

07 SEP 2001

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Vincent Millin

Telephone No. (703) 305-3900

(12) UK Patent Application (19) GB (11) 2 382 267 (13) A

(43) Date of A Publication 21.05.2003

(21) Application No 0127470.3

(22) Date of Filing 16.11.2001

(71) Applicant(s)

Micronics Telesystems Limited
(Incorporated in the United Kingdom)
388-396 Oxford Street, LONDON,
W1N 9HE, United Kingdom

(72) Inventor(s)

Stephen Wunker

(74) Agent and/or Address for Service

Origin Limited
52 Muswell Hill Road, LONDON, N10 3JR,
United Kingdom

(51) INT CL⁷

H04M 11/00 // G06F 17/60 , G07B 17/00

(52) UK CL (Edition V)

H4L LDPC L205 L209

(56) Documents Cited

WO 1997/023082 A US 6047272 A
US 5737729 A US 2002/0029189 A
WWW.M-INDYA.COM
THE FUTURE OF SMS: EMPOWER
YES 2 SMS: MOBILE LIFESTREAMS

(58) Field of Search

UK CL (Edition T) H4L LDPC LEP LESF LRAB LRAD
LRAX LRCMC LRNMB
INT CL⁷ G06F 17/60, G07B 17/00, G07F 7/00, H04L
12/58, H04M 3/533 11/00 15/00, H04N 1/00, H04Q 7/20
Other: Online: WPI EPODOC JAPIO

(54) Abstract Title

Sending prepaid sms alerts over the gsm network from a source other than the recipient device

(57) A technical infrastructure which allows a SMS alert request to come from a source other than the device to which the alert is to be sent and for those alerts to be fully pre-paid.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

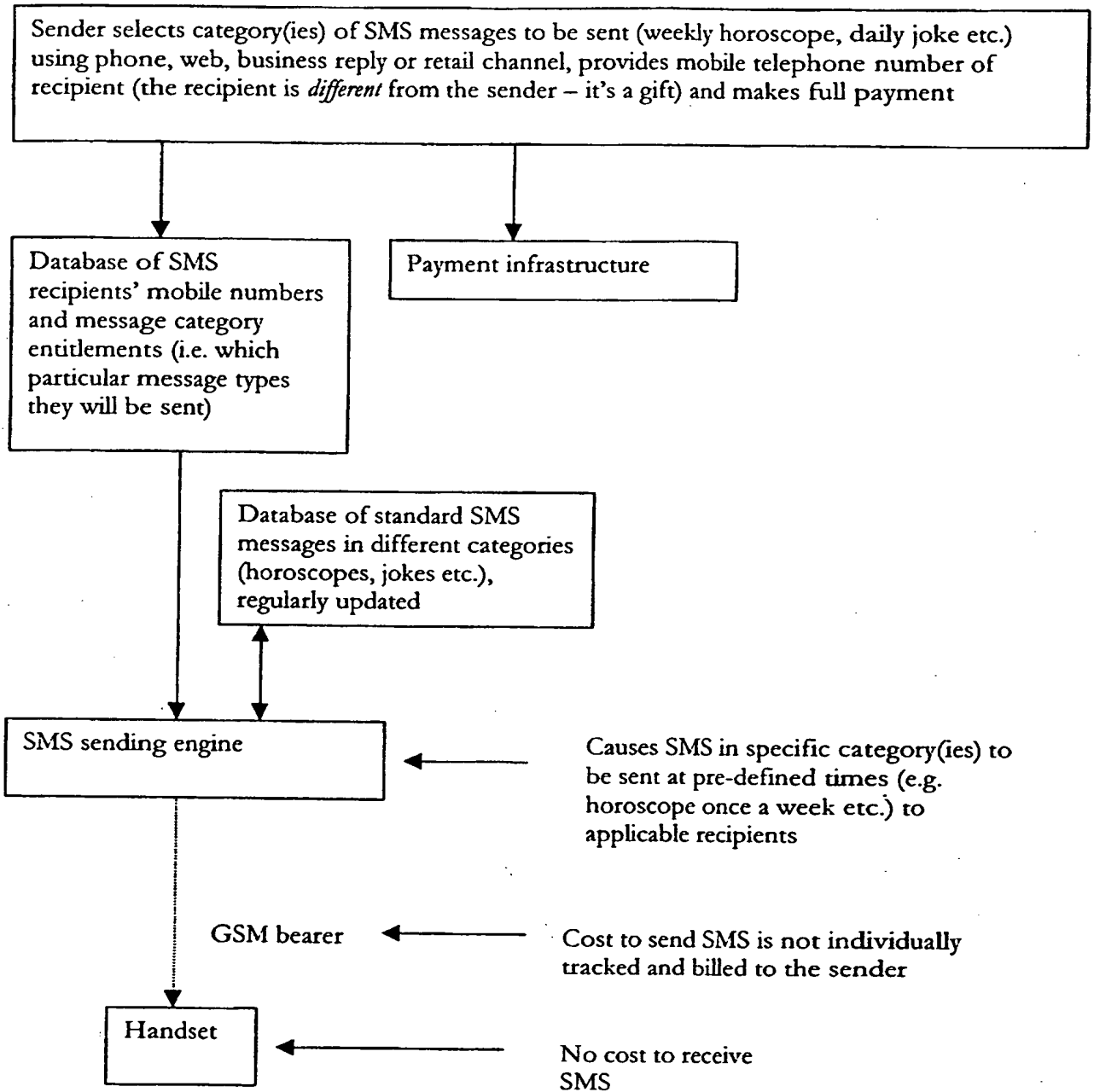


Figure 1

METHOD OF SENDING MESSAGES OVER A WIRELESS BEARER

FIELD OF THE INVENTION

This invention relates to a method of sending messages over a wireless bearer, such as SMS "alerts" over the GSM network. Alerts are information messages sent to a large number of people, as opposed to personal communications. Alerts cover items such as weekly horoscopes, daily jokes, lottery number results etc.

DESCRIPTION OF THE PRIOR ART

SMS messaging has become hugely popular in many countries; much of this traffic is made up of short, personal messages sent between users of mobile telephones. But increasingly, network operators are offering alerting services, such as horoscopes, daily jokes, lottery number results etc., as noted above. These can be very profitable services, with UK operators currently charging users approximately 12 pence per alert received.

To subscribe to these alerts, a user dials a specific number from his or her mobile telephone, if using a non-WAP telephone. Different services can be subscribed to by using different access telephone numbers. If a WAP enabled telephone is used, then the user generally has a 'services' option in his device menu which, when selected, automatically pulls up a list of all available alerts. In either case, the computer infrastructure at the operator automatically recognises the *requesting mobile telephone* and sets up the necessary modifications to its alerting database so that the *requesting mobile telephone* gets the required message and the per message cost is added to the applicable bill.

There are several disadvantages to this approach. First, tracking the sending of SMS messages and integrating that costing data into existing billing systems is inherently complex, and can require extensive computer and human resources to support the potentially huge number of transactions and to cope with the inevitable errors. Secondly, because an alerting service can currently only be requested from the mobile telephone which wishes to receive the alerts, if a mistake arises (e.g. the recipient's telephone number has changed or the system has failed to correctly recognise or record the telephone number of the requesting user, or

that data has become corrupted) then the operator is unable to contact the requesting user to resolve the problem.

5 SUMMARY OF THE PRESENT INVENTION

In a first aspect of the present invention, there is a method of sending messages over a wireless bearer comprising the following steps:

- (a) allowing a user to select a category of messages to be sent to a recipient;
- 10 (b) allowing the user to provide information to a supplier (i) that defines the selected category and (ii) further comprises the mobile telephone number of the desired recipient of future messages belonging to that category; and
- (c) sending a message belonging to the pre-selected category to that recipient;

15 wherein the user (a) provides the information to the supplier using a physical device other than the device with the mobile telephone number of the desired recipient and (b) makes full payment for a pre-selected number of messages or messages over a pre-selected duration prior to the initiation of the supply of messages.

20 This approach solves the above deficiencies of the prior art. The core differences over conventional SMS alerting systems (e.g football score alerts) are that conventional systems require the service request to come from the mobile telephone *of the eventual recipient*. There has been a strong assumption that the *only* cost-effective route to setting up SMS alerts is to use an entirely automated system which recognises the requesting mobile telephone and allows that telephone to request alerts to be sent to it.

25 The present invention is based on the insight that this assumption is flawed and in fact leads to a technical infrastructure which is more complicated than it need be. The essence of the approach of the present invention is to provide a technical infrastructure which allows, for example, a SMS alert request to come from a source *other than* the device to which the alert is
30 to be sent and for those alerts to be fully pre-paid. Counter-intuitively, there are technical advantages which flow from this approach: first, conventional SMS alerts cost the recipient

per message received. With the present invention, messages are pre-purchased so that there is no need to deploy any of the costly and complex billing infrastructure needed to track and bill SMS messages, as is required in conventional SMS alerting systems. Because of the absence of the need to deploy a complex billing infrastructure, the overall technical infrastructure associated with the present invention can be far simpler than that required by conventional SMS alerting systems, and hence cheaper and faster to construct. These advantages can be critically important in the fast moving and commercially demanding environment of mobile communications.

Secondly, if there is a problem with having messages received, the present invention enables the supplier to contact the purchaser to resolve the problem. That was not always possible in the prior art approach of allowing requests for alerts only to be made from the mobile telephone which is to eventually receive the alerts; for example, take the case where a user requests alerts, but then changes his telephone number or happens to be located in a region which requires a different kind of number prefix to be dialled by a caller (as arises with some mobile telephony systems). With conventional, automated self-request systems, then the operator has no way of finding out the correct new number or even alerting the user to the difficulty in delivering the alerts. But where a different device is used to request the alert, as in the present invention, the operator can contact the person who made the request and explain the problem.

Thirdly, with conventional systems, there is a need to integrate automated caller ID systems into the database that tracks the telephone numbers of all devices which are entitled to receive alerting messages. This can be a complex and expensive software integration problem; yet this problem is avoided entirely if the database is not reliant solely on another system which auto-detects the caller's telephone number, but the database instead allows other approaches to providing the telephone number of the recipient. These other approaches can be simpler than current systems based on auto-recognising the caller's telephone number, and include a user simply calling a telephone call centers and giving the required information (i.e. at a minimum the kinds of alerts to be bought, payment data and the recipient's mobile telephone number), or logging onto a web site or using a business

reply card. It is also possible for a user to use his or her mobile telephone and interface with an automated system which requires the user to input the recipient's telephone number (i.e. it makes no assumption that the caller wants the alerts for his or her own device).

5 In another aspect, there is a message sent using the inventive method defined above.

In a final aspect, there is a mobile telephone when displaying a message sent using the inventive method defined above.

10 Further details of the invention are defined in the Claims of this specification.

Brief Description of the Figure

The present invention is depicted schematically in **Figure 1**. A commercial implementation
15 called MerryMobile™ is available from Brainstorm of London, England.

DETAILED IMPLEMENTATION

1) MerryMobile overview

20 The basic proposition is to offer pre-paid yearly subscriptions for compelling alerts services. These will be primarily positioned as gifts. The functionality is geared towards purchase for another (although it would be possible to purchase for oneself as well).

Referring to **Figure 1**, the first step is for a user (referred to as a "sender") to select
25 category(ies) of SMS messages to be sent (weekly horoscope, daily joke etc.) using phone, web, business reply or retail channel. The sender then provides the mobile telephone number of the recipient (the recipient is *different* from the sender – it could therefore be a gift) to the service provider and makes full payment using an appropriate mechanism to that provider (e.g. credit card authorisation, an instruction to include in one's own telephone bill
30 etc). The service provider maintains a database of SMS recipients' mobile numbers and message category entitlements (i.e. which particular message types they will be sent), together

with a database of standard SMS messages in different categories (horoscopes, jokes etc.), which are regularly updated.

5 A SMS sending engine then causes SMS alerts in specific category(ies) to be sent at pre-defined times (e.g. horoscope once a week etc.) to the mobile telephone numbers defined by the databases as being entitled to receive those alerts. The alerts are sent over a wireless bearer, such as GSM. Unlike conventional SMS alerting systems, there is no need to track and bill each SMS alert received.

10 The following sections outline some of the practical aspects to an implementation of the present invention.

2) Services

15 Typical MerryMobile services will comprise:

- Weekly horoscopes
- Weekly fortune cookie
- Weekly health tip
- 20 • Weekly joke
- Weekly flirting tip (for men)
- Weekly flirting tip (for women)
- Chat-up lines
- Weekly stop smoking tip
- 25 • Lottery numbers
- Bespoke options

The service should be built so that post-Xmas, the gift proposition can be altered to begin at any time, and be flexible enough to allow the service provider to amend the offer to a daily,
30 weekly or monthly service etc. Further alerts types may be added. Each message sent carries an end identifier, merrymobile.com, should the recipient decide to halt the service.

3) Business Reply Purchase

Buyers purchase the product by credit card on a business-reply postal card picked up at a Point of Sale. The brochure must state

5

- What each service consists of (cards for different points of sale may differ)
- What each service costs
- The alternative purchase options: phone and Web
- When the gift begins (ie: January)
- 10 • Explain that the SMS will contain further details of how to stop/operate the service
- The option to have a serial number on the brochure is being investigated

The buyer must be able to fill in the following (not necessarily in this order):

15

- How many services are being purchased
- Which services are being purchased
- Credit card authorisation details – name, address, card details
- The mobile phone number of the recipient
- Buyer's contact details in case a problem occurs, e.g. mobile number has changed
- 20 • OPTIONAL: The name of sender of the gift (may be a personal name or otherwise different from credit card)
- OPTIONAL: The name of recipient
- OPTIONAL: Whether a nicely-printed gift certificate and envelope is required at an extra cost, e.g. £1.50

25

4) Phone Purchase

Buyers purchase the service on credit card via the phone (call centre) instead of using the business-reply postal card picked up at a Point of Sale. One number can be used for all

30 retailers. The buyer must be able to give details of the following (not necessarily in this

order):

- How many services are being purchased
- Which services are being purchased
- 5 • Credit authorisation details – name, address, card details
- The mobile phone number of the recipient
- Buyer's contact details in case a problem occurs, e.g. mobile number has changed
- OPTIONAL: The name of sender of the gift (may be a personal name or otherwise different from credit card)
- 10 • OPTIONAL: The name of recipient
- OPTIONAL: Whether a nicely-printed gift certificate and envelope is required at an extra £1.50

5) Web Purchase

15

Buyers purchases the service on credit card via the web at partners' sites or at www.merrymobile.com. The web front end is be a "vanilla"/agnostic structure and design for white label provision and simple integration into partner sites/portals. The back end will be the chosen secure credit card/billing structure. The purchase front end may additionally

20 be available as part of Mobile Portal.

The site must:

Show what each service consists of (sites may vary slightly in terms of services)

- 25 • Give at least one example of each service
- Provide details of content if available/appropriate
- Show what each service costs
- The alternative purchase options by phone
- When the gift begins (ie: January)
- 30 • have a strong call to action – very few clicks to end purchase
- Explain that the SMS will contain further details of how to stop/operate the service

- Be highly customisable post-Xmas for ongoing gift purchase and customisable for future events such as Valentines' Day

The buyer must do the following (not necessarily in this order):

5

- allow addition of products to (and removal from) a shopping basket
- provide credit authorisation details – name, address, card details
- provide the mobile phone number of the recipient (twice for confirmation)
- provide the buyer's contact details in case a problem occurs, e.g. mobile number has changed

10

- provide their email address (for an email receipt)
- OPTIONAL: provide the name of sender of the gift (may be a personal name or otherwise different from credit card)
- OPTIONAL: provide the name of recipient

15

- OPTIONAL: Whether a nicely-printed gift certificate and envelope is required at an extra £1.50
- OPTIONAL: provide text and delivery details for the gift card if required

The recipient must be able to do the following:

20

- Users visiting the website may request a PIN in order to stop the service. The PIN is sent to the mobile number that the user specifies, which could be matched against the numbers of all people using the service. The sending of the PIN is reverse-billed where possible.

25

- Users can stop the service(s) by entering both mobile number and accompanying PIN
- Any number of PINs may be sent on request to the user. Each makes the previous one defunct.

30

- At this stage, users cannot redirect the service to a different number. This functionality may be envisaged for future versions of the service – eg: for Valentines' Day as discussed

6) SMS Confirmation (for recipient)

- 5 All recipients receive a confirmatory SMS with the following information (for each service):

*Merry Mobile ! You've been given an SMS gift of [insert service description] [OPTIONAL: from]
[OPTIONAL: insert gift giver's chosen name for sender]. To alter details visit
www.merrymobile.com*

10

NB: This leaves 60 characters for the optional "from", plus the service name and the sender's name. This will need to be limited. For the Xmas products and gift offering, the SMS should be set to arrive on December 25th. In future, it may be required to set the date of delivery and the first week for commencement of service.

15

7) Confirmation of Purchase (for purchaser)

Post and phone purchasers receive confirmation of purchase in the post, with some further information about www.merrymobile.com in order to be able to stop the service, alter the number, or pass on details to the recipient. Web purchasers receive similar information by email.

20

8) Optional Card (for recipient)

- 25 Purchaser may receive opt to buy a quality card (to send to the recipient of the gift). If this has been purchased, the card will be sent with the confirmation of purchase.

9) Banner Advertising etc

In addition to preparation of the purchase front end, the web designer should additionally provide some banner ads in standard sizes for customisation by partners, and subsequent proliferation on partner's site, Brainstorm, and Mobile Portal.

CLAIMS

1. A method of sending messages over a wireless bearer comprising the following steps:
 - (a) allowing a user to select a category of messages to be sent to a recipient;
 - 5 (b) allowing the user to provide information to a supplier (i) that defines the selected category and (ii) further comprises the mobile telephone number of the desired recipient of future messages belonging to that category; and
 - (c) sending a message belonging to the pre-selected category to that recipient;wherein the user (a) provides the information to the supplier using a physical device
10 other than the device with the mobile telephone number of the desired recipient and (b) makes full payment for a pre-selected number of messages or messages over a pre-selected duration prior to the initiation of the supply of messages.
2. The method of claim 1 wherein the message is a SMS alert.
- 15 3. The method of Claim 2 in which the alert is an alert selected from the following list:
 - (a) horoscopes
 - (b) fortune cookie
 - (c) health tip
 - 20 (d) joke
 - (e) flirting tip (for men)
 - (f) flirting tip (for women)
 - (g) Chat-up lines
 - (h) stop smoking tip
 - 25 (i) Lottery numbers
4. The method of Claim 3 in which the alert is provided to the recipient at pre-defined regular intervals.
- 30 5. The method of Claim 1 in which the user provides the information to the supplier using one of the following physical channels:



12

- (a) mobile telephone
- (b) web site
- (c) business reply card

5 6. A message sent using any of the preceding methods.

7. A mobile telephone when displaying a message sent using any of the preceding methods.

10

CLAIMS

1. A method of sending messages over a wireless bearer comprising the following steps:

(a) allowing a user to select a category of messages to be sent to a recipient other than the user;

(b) allowing the user to provide information to a supplier (i) that defines the selected category and (ii) further comprises the mobile telephone number of the desired recipient of future messages belonging to that category; and

(c) sending a message belonging to the pre-selected category to that recipient;

wherein the user (a) provides the information to the supplier using a physical device other than the device with the mobile telephone number of the desired recipient and (b) makes full payment for a pre-selected number of messages or messages over a pre-selected duration prior to the initiation of the supply of messages.

2. The method of claim 1 wherein the message is a SMS alert.

3. The method of Claim 2 in which the alert is an alert selected from the following list:

(a) horoscopes

(b) fortune cookie

(c) health tip

(d) joke

(e) flirting tip (for men)

(f) flirting tip (for women)

(g) Chat-up lines

(h) stop smoking tip

(i) Lottery numbers

4. The method of Claim 3 in which the alert is provided to the recipient at pre-defined regular intervals.

5. The method of Claim 1 in which the user provides the information to the supplier using one of the following physical channels:

14

- (a) mobile telephone
- (b) web site
- (c) business reply card

5 6. A message sent using any of the preceding methods.

7. A mobile telephone when displaying a message sent using any of the preceding methods.



INVESTOR IN PEOPLE

Application No: GB 0127470.3
Claims searched: 1-7

Examiner: Hannah Sylvester
Date of search: 20 May 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed. T): H4L (LRNMB, LRCMC, LRAB, LRAD, LRAX, LDPC, LEP, LESF)

Int Cl (Ed. 7): H04M 3/533, 15/00, 11/00, H04L 12/58, H04N 1/00, H04Q 7/20, G07B 17/00, G07F 7/00, G06F 17/60

Other: Online: WPI EPODOC JAPIO
Internet: Google search

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US2002/0029189 (TITUS) A	
A	US6047272A (AT & T)	
A	US5737729A (DENMAN)	
A	WO97/23082 (AT & T)	
A	WWW.M-INDYA.COM (M-INDYA)	
A	THE FUTURE OF SMS (EMPOWER)	
A	YES 2 SMS (MOBILE LIFESTREAMS)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.